

中国秋海棠属植物的传统利用*

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摘要: 秋海棠属植物除了具有较高的观赏价值外, 在中国还作为药用、食用、饮料和饲料等被利用。本文应用民族植物学研究方法, 通过野外调查、文献和标本收集整理和研究, 共记载了中国产 26 种秋海棠属植物被作为药用、食用、饮料和饲料加以利用。在所记载的 26 种国产秋海棠属植物中, 有 24 种作药用, 8 种作食用 (蔬菜) 或饮料, 5 种作饲料。3 种作饮料的种类在其自然分布地被广泛利用。9 种秋海棠作为多种用途加以利用, 其中 8 种既被作为药用、食用和饮料, 也被作为饲料加以利用。本研究还表明, 国产秋海棠属植物中, 有些种类由于过度采集利用或其它因素已变得稀有或濒危。由此提出, 合理开发利用和有效保护应成为今后中国秋海棠属植物研究的重要内容。

关键词: 秋海棠; 民族植物学; 利用; 中国

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Traditional Uses of Begonias (Begoniaceae) in China*

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Abstract: Twenty-six species in the genus *Begonia* were recorded for different purposes as medicine, food, beverage and pig feed in China (ornamental uses excluded). Among these twenty-six species recorded for different uses, twenty-four species are used as medicine, eight species are used as food (vegetable) or beverage, and five species are used as pig feed. Three species are commonly used for making beverage in the areas of their natural distribution. Nine species have multiple uses, either for medicine, for food, beverage or pig feed. Our study also indicated that some species are becoming rare and endangered owing to over collection and other factors.

Key words: *Begonia*; Ethnobotany; Usage; China

The genus *Begonia* L. has approximately 1 400 species and comprises nearly all of the species in the family Begoniaceae (Smith *et al.* 1986; Doorenbos *et al.* 1998). For most species, the natural habitat is typically moist and shady. They are largely found along streams, in forests, and by roadsides. The genus is widely distributed in the tropics and subtropics of

the Americas, Asia and Africa. Only a few species occur naturally in temperate climates (Thompson and Thompson, 1981). China has one of the richest natural distributions of begonias with over 150 species having been described (Shui *et al.* 2002). The Chinese begonias are mainly distributed in the southern provinces, with the majority of species native to Yunnan and

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Guangxi . Over 90% of the Chinese begonia species are endemic (Ku, 1999) .

Begonias have been used and cultivated in China since long before the Latin name of the genus was established (Thompson and Thompson, 1981; Chen, 1996) . The earliest record citing the use of begonias in China was in the book *Omissions of Compendium of Materia Medica* (Zhao, 1765) . However, folk usage of begonias in China predates published records .

As begonias are of much horticultural interest, they have long been in common use as ornamentals in China and elsewhere in the world . Interest in *Begonia* has led to much botanical and horticultural investigation, and has resulted in many useful publications . Additionally, various authors report that in several countries begonias have been used for medicine and in some instances as a source of food (Johannes, 1975; Laferriere, 1990; Jain and Dam, 1979; Basurto-Peña, 2003) . There is abundant literature describing medicinal uses in China (Wu, 1984, 1990; Chen and Cheng, 1990) . However, there is much less published evidence of use as a food source .

The distribution patterns of begonias are greatly influenced by environmental factors and human activity . Many Chinese begonias require a narrowly defined ecological environment in order to prosper . (Wu and Ku, 1995, 1997; Shui and Huang, 1999; Guan *et al.* 1999) . Owing to the situation of decreasing natural forests in China, and the influence of human activity, the existence of many species is threatened . In many cases, once common species have become rare or even extinct . Another factor that has contributed to the demise of some species is an indifference to traditional uses because of modernization . The passing from one generation to the next of knowledge of traditional uses of begonias, and many other plants, has become less prevalent . Thus, appreciation for the plants for uses other than as ornamentals has eroded and protection of their forest habitats by local people appears to have declined as a result .

The present study concentrates on traditional uses of begonias in China other than for ornamental purposes .

The objective is to gather, record, and further information that will lead to a better understanding of the knowledge of traditional uses of begonias in China before this knowledge disappears .

Methods

The field survey routes and study areas were chosen based on a studious review of literature and herbarium specimens . Twelve extensive field investigations were carried out beginning in 1996 . The field survey areas were in the provinces or region of Yunnan, Guangxi, Shichuan, Guizhou, Hunan, Guangdong and Hainan, where over 95% of the Chinese begonia species are distributed . Information used in this study for the provinces in which field investigation was not possible was instead based on literature or local floras .

During the field investigation, information was obtained by directly interviewing housekeepers, medicinal herb store owners, herb doctors and local people at markets . The information collected included local names for the plants and the meaning of the names, collection sites, parts of plant used, preparation methods, and the purpose for which the plant was used . In most cases, we would visit the local habitats of the plants, which we found in a market or herb store in order to collect more information and vouchers for identification . In some instances, vouchers were bought from the local markets or provided by the local people . As determinations are sometimes difficult or impossible using only vegetative parts, some plants were introduced into cultivation for subsequent identification and conservation of the materials . All of the introduced plants are in the permanent collections of the Kunming Botanical Garden .

During the field investigations we found that some useful species cited in the literature or by folk saying could not be found in markets or herb stores . In such cases, we collected and presented examples of the plant to the local people and asked if they knew of any uses . In order to make sure that the plant was actually used by the local people, several opinions were solicited . In those instances when different answers were given, the majority answer was used in the paper .

Sometimes we found that in a single locality multiple names would be given for the same plant . Likewise, there were instances when different species were known locally by the same name . In such cases, we interviewed as many people as possible to ensure that we had complete information for our study .

The local people we interviewed and the ancient Chinese texts we reviewed used only local and common Chinese names .

Hence, much study was necessary to determine the correct botanical names for these species. The common Chinese names used in this paper mainly follow Flora of China (Ku, 1999). Many species often have several names by which the local people refer to them. In such cases, we chose the two most commonly used local names for use in the article.

Results and Discussion

Twenty-six Chinese species in the genus *Begonia* were recorded in this study. The four main uses for begonia are as medicine, food, beverage, and pig feed. The species and their uses are summarized in Table 1.

Twenty-four of the twenty-six species recorded are used for medicine. Only *B. edulis* Lévl. and *B. versicolor* Immsch. were not mentioned for medicinal purpose in the historical literature or during our field investigation. Eight species are used as food (vegetable)

and five species are used as pig feed. Three species are commonly used to make a beverage by local people living in the area of the plant's natural range. Nine species were found to have multiple uses as medicine, food, beverage and pig feed. Three species mentioned as useful for vegetable were not mentioned for pig feed. The main reason for that might be that those species do not produce enough yields for collecting for pig feed. However, *B. grandis* Dry. is common in southern China and in some areas yields an amount adequate for pig consumption, yet, the species is not used for pig feed by the local people.

The common Chinese name of *B. acetosella* Crab is Wuchi Qiuhaitang (无翅秋海棠). Wuchi means wingless, and Qiuhaitang means begonia. Its local name in Yunnan is called Huangdan Cao (黄疸草).

Table 1 Begonias used for different purposes in China

Species	Purposes	Parts of plant used	Medical efficacy or usage	Distribution (province) *
<i>Begonia acetosella</i>	medicine food	whole plant; shoot	dysmenorrheal; vegetable	YN, XZ
<i>B. algaia</i>	medicine	rhizome	injuries, snake bite, edema	JX, HN
<i>B. asperifolia</i>	medicine	rhizome	hemostasia, acesodyne	GZ, YN, XZ
<i>B. augustinei</i>	medicine	whole plant	snake bite	YN, GZ, GX, HN
<i>B. cathayana</i>	medicine	whole plant	cough, bronchitis, scald	FJ, GX, YN
<i>B. cavaleriei</i>	medicine	whole plant	injuries, edema	GD, GX, GZ, YN; HIN
<i>B. circumlobata</i>	medicine food	whole plant; shoot; stem	injuries, scald, snake bite; salad or soup	HB, HN, GZ, GX, GD, FJ
<i>B. crassirostris</i>	medicine food beverage	whole plant; shoot	faucitis, edema, toothache; vegetable; beverage	FJ, HN, GD, GX, YN, GZ, HN, JX
<i>B. dryadis</i>	medicine	whole plant	scabies, snake bite, acesodyne	YN
<i>B. edulis</i>	food beverage pig feed	stem, petiole shoot	vegetable; beverage	YN, GZ, GX, GD
<i>B. fimbristipula</i>	medicine food beverage	whole plant or young leaf	rheumatism, calenture fever, cough; vegetable, beverage	YN, GZ, GX, GD, JX, FJ, HN, SC
<i>B. grandis</i>	medicine food	whole plant; shoot	gemostasia, detoxification, diarrhea; vegetable	South China & HB, BJ, SD
<i>B. handelii</i>	medicine	whole plant	itch, scabies	GD, GX, YN
<i>B. hemsleyana</i>	medicine food pig feed	whole plant; shoot	cold, pneumonia, cough; vegetable	YN, GX, SC,
<i>B. henryi</i>	medicine	whole plant	stanch, diarrhea, gastralgia	YN, GX, GZ, SC
<i>B. howii</i>	medicine	whole plant	bronchitis, scabies, swell	HN, GX
<i>B. labordei</i>	medicine	tuber	bronchitis, asthma	YN, SC, GZ
<i>B. leprosa</i>	medicine	whole plant	scabies, snake bite	GX, GD, YN
<i>B. limprichtii</i>	medicine	whole plant	injuries; rheumatism	SC, GZ
<i>B. palmata</i>	medicinepig feed food	whole plant; shoot	cold or flu, rheumatism, bronchitis; vegetable	YN, GZ, SC, GX, GD, HN, TW, JX, ZJ
<i>B. pedatifida</i>	medicine	rhizome	Hemostasia, acesodyne, rheumatism	YN, SC, GZ, HN, HB, JX, GD
<i>B. taiwaniana</i>	medicine	rhizome	hemostasia; detumescence acesodyne	TW, HN, GZ
<i>B. tetragona</i>	medicine pig feed	upper part	swell, scabies	YN
<i>B. versicolor</i>	pig feed	leaf	mixed with other feed	YN
<i>B. wilsonii</i>	medicine	rhizome	hemostasia, cough, leucorrhea	SC
<i>B. yunnanensis</i>	medicine	whole plant	stomachache; colicfracture	YN, HN, SC, GZ

* Note: Abbreviation of provinces or regions of China: BJ = Beijing; FJ = Fujian; GD = Guangdong; GX = Guangxi; GZ = Guizhou; HB = Hubei; HN = Hunan; HIN = Hainan; JX = Jiangxi; SC = Sichuan; SD: Shandong; TW = Taiwan; XZ = Tibet; YN = Yunnan; ZJ = Zhejiang

Huangdan meaning icterus or jaundice, and Cao meaning herb. The name suggests its medical potential. However, neither the local people interviewed nor any of the ancient references cited use of the plant for treating icterus. The common use is for the treatment of cramps or dysmenorrhea. As a food source, the young shoots are used as vegetable either cooked for soup or fried with meat or other vegetables.

Begonia algaia L. B. Sm. et Wassh. is called Meili Qiuhaitang (美丽秋海棠) in Chinese. Meili means beautiful. Its local name in Jiangxi is Huzhao Long (虎爪龙). Huzhao means tiger's claw, and the plant is so named because of its lobed leaves. Long means dragon, probably owing to its brownish rhizome. The species is used as medicine both in Jiangxi and Hunan. Only the rhizome is used for treatment of injuries or swelling from falls and snake bite.

Begonia asperifolia Irmsch. is called Zaoye Qiuhaitang (糙叶秋海棠) or Cuyue Qiuhaitang (粗叶秋海棠), both Chinese terms referring to the hairy and rough leaves. The species is widely distributed in NW Yunnan and Xizang, and also can be found in Guizhou. Oddly, in Yunnan, where the species is common, it is not used as medicine or food. In Guizhou, however, where it grows infrequently, it is commonly used as medicine for the treatment of hemostasia and acesodyne. We don't know yet if the plant is used for any purpose in Xizang.

Begonia augustinei Hemsl. (歪叶秋海棠) is mainly distributed in Yunnan. It was also mentioned in some literature or local floras that the species is distributed in Guangxi, Hainan and Guizhou provinces (Institute of Botany, 1988). Our field investigations found populations in Yunnan and Guangxi but not in Guizhou and Hainan. The species is common in southwestern Yunnan. It is used for curing snake bite. The whole plant is collected and kneaded into fine pieces and then put on the wound. We don't know if it really works but snake bites are a serious problem in this area.

Begonia cathayana Hemsl. is known as Zhonghua Qiuhaitang (中华秋海棠) and Hua Qiuhaitang (华秋海棠), both meaning Chinese begonia. It has

several local names. Some local names are related to its medicinal usage, such as Huaye Yikouxue (花叶一口血) (Guangxi). Huaye means variegated leaf and Yikouxue is a common name for several medicinal plants. Shanhaitang (山海棠) means mountain begonia. Ku Suantai (苦酸苔) and Gongji Suantai (公鸡酸苔) are two local names commonly used in Simao in SW Yunnan (Wu, 1984; Ku, 1999). Ku means bitter and Gongji means rooster. Suantai is a local name for another edible plant belonging to the genus *Polygonum* L. in the Polygonaceae. The plant is popularly used as medicine in Yunnan and Guangxi for treatment of various conditions, but the most common use is for diminishing inflammation.

Eight different names were recorded for *B. cavaleriei* Lévl. The two most commonly used names are Dunye Qiuhaitang (盾叶秋海棠) and Chang-gan Qiuhaitang (昌感秋海棠). Chang-gan is a county in Hainan province and Dunye means blunt leaf. Some local names refer to the natural habitat in which it grows or to its medicinal purpose. The names used in Guangdong and Guizhou are Pashanhou (爬山猴) meaning "mountain climbing monkey", and Pashanlong (爬山龙) meaning "cliff climbing dragon". The name of Yan Wugong (岩蜈蚣) is used in Yunnan and Guangxi, meaning rocky centipede. Centipede is commonly used for treating rheumatism in traditional Chinese medicine. Pa Dilong (爬地龙) and Pa Yan Long (爬岩龙) are both used in some places in Guizhou. Pa means climbing, Dilong means earthworm, and Long means dragon (Institute of Botany 1988). Earthworms are used as medicine in some places in China. Various medicinal efficacy was mentioned by local people but the most popularly mentioned purpose is for the treatment of injury and swelling from falls. The plant is also mentioned as an aid in the curing of tuberculosis.

Several local names in Yunnan, Guangxi and Guizhou for *B. circumlobata* Hance used the word Suan, which means sour. Such local names are Shi Suan Tai (石酸苔), Suan Tang Gan (酸汤杆), Dama Suan Tang Gan (大麻酸汤杆), and Houzi Suan (猴子酸) (Wu, 1984; Ku, 1999). These names

clearly indicate its usage for food purposes, either for making soup or salad. The name of Houzi Suan is very interesting. Houzi means monkey. The name means that monkeys feel sour too. In another name, Tang means soup and Gan means stem. So, from the name Suan Tan Gan we can see that stem of the plant is used for making a sour soup. Apart from its medicinal usages listed in the table, it is also used to treat dysmenorrhea and carbuncle.

Begonia crassirostris Irmsch. has eight different local names. The names of Hong (red) Yezi (leaf) (红叶子) and Ye Haitang (野海棠, wild begonia) are used both in Yunnan and Guizhou. The name Suan Jiaogan (酸脚杆) is only used in Pingbian county of Yunnan (Wu, 1990; Institute of Botany 1988). Jiaogan normally means leg but here actually meaning stem. From the name, we can infer that the stems are used for making soup. Hong Lian (红莲) is a common name used in Guangxi, meaning red lotus. Da Banbianlian (大半边莲), Rou Banbianlian (肉半边莲) and Da Haitang (大海棠) are names used in Guangdong, Guizhou and Hunan. Da means big, Rou means fleshy and *Banbianlian* means *Lobelia*. *Lobelia* is a commonly used medicine in China. *Begonia crassirostris* is popularly used as medicine, food and beverage in most places within its distribution range. Medicinally, it is used to treat various conditions such as inflammation, faucitis, toothache, scrofula, burn and scald. It is interesting to note that the species is used for treating esophageal cancer. As a food, the young leaves are picked for making soup or fried as vegetable. Also, the sour tasting juice of young stems and petioles is used for making a beverage.

Begonia dryadis Irmsch. is only distributed in the southeastern part of Yunnan, and its local name is Hong Bajiaolian (红八角莲) (Wu, 1984). Bajiaolian (*Dysosma*) is the common name of another plant, which is frequently used as medicine in China. The local Hani people collect the whole *B. dryadis* plant for use in the treatment of scabies, snake bite and achesodyne. This study is the first published record of the plant's use as medicine.

From the name of *B. edulis* we know that the plant is edible. This species has not been mentioned either in literature or by local people as having medicinal uses. It was found that the young leaves, stems and petioles are occasionally used for food in some places.

Begonia fimbristipula Hance is a very famous plant in China because of its medical function. Its Chinese name is called Zibei Tiankui (紫背天葵). The species is widely distributed in southern China, especially in Guangxi and Guangdong provinces, according to herbarium specimens, literature, and the local people. There are several local names such as Long Hu Cao (龙虎草), and Yi Ye Hong (一叶红) and Xiao Lingyang (小羚羊). Long (dragon), Hu (tiger), and Cao (herb) probably means the plant is a very precious but rare medicinal plant. Yi Ye Hong, (meaning one red leaf) and Xiao Lingyang (meaning small antelope) describe its morphology and growing habit in the wild. The leaves have long been used for making a beverage, one which is a famous drink in Guangdong in summer (Wu, 1990; Institute of Botany 1988). But, the plant is getting rare because of over collecting. During our investigation in Dinghushan of Guangdong, the center of wild distribution for this species, we noticed that a lot of plant products are sold under the common Chinese name for this species-Zibei Tiankui, but nearly all the products were actually either *B. cathayana*, *B. grandis* or *B. palmata* D. Don. The whole plant including the tuber is used as medicine for treatment of rheumatism, calenture fever and cough.

Begonia grandis is widely distributed in China from the south to the north of the country. Its distribution near Beijing is the northernmost for the genus *Begonia* worldwide (Ku, 1999). The plant was first mentioned as a medicinal in the book Bencao Gangmu Shiyi (Omissions of Compendium of Materia Medica; Zhao, 1765). It is still popularly used in many places of China for the treatment of various diseases. According to some locals interviewed during our survey, *B. grandis* is also used as food. There are many local names for the species, such as Bayue Chun (八月

春), meaning spring in August; Yan Wanzi (岩丸子), meaning tuber on cliff; Hong Yan Yu (红岩芋) means red taro on cliff; Shan Haitang (山海棠), meaning mountain begonia; Luye Hongbei (绿叶红背) means green on upper surface and red on back surface and Wai Zui Lian (歪咀莲), meaning askew leaf. Most of these local names refer to its growing habit or morphological characteristics.

Begonia handelii Irmsch. is called Daxiang Qiuhaitang (大香秋海棠) or Xianghua Qiuhaitang (香花秋海棠) because of its fragrant flowers. Daxiang means very fragrant and Xianghua means fragrant flowers. The whole plant is used for medicine in Guangxi and Guangdong, but only rhizomes are used for medicinal purpose in Yunnan (Wu, 1990). The reason might be that the plant is more commonly seen in Yunnan than in Guangxi and Guangdong. The use of this species for medicinal purpose of treating itch and scabies is recorded here for the first time.

Begonia hemsleyana Hook. f. is distributed in Yunnan, Guangxi and Sichuan. The local name in Yunnan is called Ci Haitang or Yansuangu. Ci means thorny and Haitang means begonia. Yansuangu probably refers to another plant (Ku, 1999). The plant is used for medicine both in Sichuan and Guangxi, but there is no record of medicinal usage in Yunnan. However, the plant is used as food and pig feed in Yunnan. The Hani people in Honghe of Yunnan call the plant Luxinduo, meaning "sour stem". This study is the first published record of this species use for medicinal, food, and pig feed purposes.

The medical efficacy of *B. henryi* Hemsl. was written in historical literature and mentioned by local people (Wu, 1984). The whole plant can be used as medicine, but the most frequently used part is the tuber. Tubers can be seen for sale on Mt. Emei in Sichuan. The local name of *B. henryi* in Honghe of Yunnan is Huoxue (活血), which refers to its function of stimulating blood circulation.

Begonia howii Merr. et Chun, *B. laboredi* Lévl, *B. leprosa* Hance and *B. limprichtii* Irmsch. are all used as medicine in the localities within their range of

natural distribution. The range of *B. howii* is limited to Hainan province according to Flora of China. However, we discovered the species growing in Guangxi province during our field investigations. *Begonia labordei* is called Hong Pan (红盘) in Ruili and Da Yan Suan (大盐酸) in Baoshan of Yunnan (Wu, 1984). Only tubers of this species are used as medicine. *Begonia leprosa* is distributed in Guangxi, Guangdong and Yunnan. In Guangxi, it is called Laohu Er (老虎耳), meaning tiger's ear, because of its rounded leaves. It is called Shishanglian (石上莲) in Guangdong, meaning "lotus growing on stone", also owing to its leaves, which are similar to lotus leaves. In Yunnan, it is called Laiye Qiuhaitang (赖叶秋海棠), which suggests a similarity between the appearance of its leaves and the skin of a wrinkled frog. *Begonia limprichtii* is called Qixinghua (七星花), meaning seven-star flower. The whole plant is collected and soaked in spirits for treating rheumatism and injuries from falls.

Begonia palmata is subdivided into 5 varieties by botanists and the species is widely distributed in many southern provinces (Ku, 1999). It is commonly used as medicine in most places within its distribution range for treating cold, flu, rheumatism and bronchitis. Also, people from a few places in Yunnan and Guangxi use the plant for food (vegetable) and pig feed. The local name of this species in Yunnan is called Yan Hong (岩红). Yan means rock and Hong means red. The name probably arose from its growing habit—it often grows on rocks, and its young leaves are red. Only young shoots are collected for food and pig feed. We were told that the plant must be boiled and soaked and then fried when used as a vegetable.

Begonia pedatifida Lévl. is widely distributed in many provinces of China and commonly used as medicine for the treatment of stomach ache, womb bleeding, rheumatism, arthritis, injuries and swelling from falls, snake bite, and other disorders. Due to its wide distribution, the species has many local names. In Guizhou it is called Hong Bajiaolian (红八角莲), Mangouhong (满沟红), Yajiao Lian (鸭脚莲), and

Shui Bajiao (水八角). Hong means red and Bajiaolian is a local name for the plant genus *Dysosma* Woodson. (All species in the genus *Dysosma*, which is unrelated to begonia, are used as medicine in China. Also, in Yunnan, *B. dryadis* is also given the name Hong Bajiaolian.) Mangouhong means "whole valley is red", referring to its habitat and growing status. Yajiao means duck palm and Lian means lotus. This refers to the appearance of the leaves like those of duck palm and lotus. Shui means water, and Bajiao means the fruit of *Illicium* L. The name is given because of its habitat and leaf characteristics. The local names for *B. pedatifida* in Sichuan are HuaJigong (花鸡公) and Fengxiang Xixin (枫香细辛). Hua means "colorful" and Jigong means "rooster". Fengxiang means sweet gum (*Liquidambar* L.) and Xixin means *Asarum* L. The name came from its leaf shape and also its medicinal function. Many species in the genus *Asarum* are popularly used as medicine in China. In Hubei, it is called Wugong Qi (蜈蚣七) or Xue Wugong (血蜈蚣). Wugong is the Chinese name for the centipede, which is also used as a medicine. Many medicinal plants are called Qi, such as Sanqi (*Panax pseudo-ginseng* var. *notoginseng* Hoo et Tseng), a famous medicine in China. Xue means blood and may refer to the flower color or the medicinal function of stimulating blood circulation. It is called Shui Huanglian (水黄连) or Shui Wugong (水蜈蚣) in Jiangxi. Shui means water and Huanglian is the Chinese name for the genus *Coptis* Salisb., which is also a medicinal plant. *Begonia taiwaniana* Hayata is said in literature to be used as medicine, but this was not confirmed in interviews. It is mentioned that the species is distributed in Hainan and Guizhou provinces but we didn't see any specimens nor living plants from Hainan and Guizhou. The species is likely only found in Taiwan. According to literature record (Wu, 1990), the species is used for hemostasia; detumescence and acesodyne.

According to Flora of China, *B. tetragona* Im-sch. is limited in its distribution to southern and southeastern Yunnan. (Tebbitt (2003) treats it as a synonym of *B. acetosella* Craib.). Although some lit-

erature refers to this taxon in Guangxi, we found no wild distribution during our field surveys (Wu, 1990; Ku, 1999). According to historical record, it is used for the treatment of detumescence and hemostasia.

Begonia versicolor is only distributed in a narrow area of southeastern Yunnan, but is common within that range. It is a very beautiful species with many colorful leaf patterns. On Mt. Daweishan in Pingbian county of Yunnan, plants of this species are abundant. Several other species of *Begonia* are also common on this mountain. As begonias are everywhere on the mountain, the mountain is referred to by some as "begonia mountain". Plants of *B. versicolor* are routinely collected by the local people for pig feed.

Begonia wilsonii Gagnep. is only distributed on Mt. Emei and in Hongxi of Sichuan. The species is getting rare because of over collecting for medicinal purposes of treating hemostasia, cough and leucorrhea. Several years ago, dry plants in abundance could be seen for sale on Mt. Emei. Currently, however, this is no longer the case. The plant is called Yidianxue (一点血) or Yidianhong (一点红) in Sichuan. This name is given because of its red or purple spotted leaves.

Begonia yunnanensis Lévl. grows throughout Yunnan and is known locally by many different names. It is called Suan Ping-guo (酸苹果) by Naxi people in Lijiang. Suan means sour and Ping-guo means apple. The name of Hong Hao-er (红耗儿) is given in Zhao-tong. In the local language Hao-er means mouse. In Simao and Xishuangbanna, it is called Xue Dang-gui (血当归) or Huaxuedan (花血丹). Dang-gui is the Chinese name for *Angelica sinensis* (Oliv.) Diels, which has long been used as medicine in China (Wu, 1984, 1990). The whole plant may be used as medicine. However, for some special treatments, only selected parts of plant are used. For example, tubers are used for treating menstruation problems, haematoma and bone fracture. Fruits are used for treating children with hematuria and colic. Whole plants are used for stomach ache and injuries from falls.

Our survey also revealed that two exotic begonias

widely cultivated for ornamental purposes in China are used as medicines . The species are *B. maculata* Rad-di . and *B. cucullata* Willd . The whole plant of *B. maculata* is used as medicine for the treatment of swelling and injuries from falls . Flowers and fresh leaves of *B. cucullata* are used as medicine for curing scabies .

Conclusion

Our study documented that twenty-six Chinese species of *Begonia* are used for different purposes . The predominant usage is for medicine . This study records for the first time the use of three species, *B. dryadis*, *B. handelii*, and *B. hemsleyana*, as being used for medicinal purposes . Among the eight species cited as being used for food (vegetable) or beverage, five are newly recorded in this paper as being used in China, *B. acetosella*, *B. circumlobata*, *B. crassirostris*, *B. palmata* and *B. hemsleyana* . Though it should be pointed out that similar uses for *B. acetosella* and *B. crassirostris* have previously been recorded from Vietnam (Tebbitt, 2003) . *Begonia fimbriatipula* is commonly used for making beverage in its main distribution areas of Guangdong and Guangxi, but there was no previous indication that it was used otherwise . However, our investigation revealed that its young leaves are used for vegetable in Yunnan . Lastly, the use for pig feed of five different species is new information documented by this study .

During our interviews, when asked about the source of their knowledge concerning the use of begonias and other native plants, nearly all of the local people responded that the information was passed down from their parents or older generation . No one cited books or historical literature as a source, although many plants they commonly use for different purposes are recorded in books and literature, especially medicinal plants . This suggests that the knowledge and ability to prepare and use plants, medicinally and otherwise, can easily be lost if the younger generation becomes disinterested .

Our survey of the literature indicated that nearly

every plant has multiple medicinal functions . However, the local people we interviewed routinely mentioned only one or two functions . We also noticed that only a few species mentioned in books or literature have been scientifically studied . The efficacy of most has never been studied by modern science . So, it is important to note that the information both from the literature and local people should be further studied and recorded .

The wild resources of some species are getting very rare because of over collecting and habitat loss . For example, the once abundant *B. fimbriatipula* can now scarcely be found in its natural distribution area . Another example is *B. wilsonii*, that is only distributed in Sichuan and which is getting very rare in the wild . Another factor leading to the demise of species is environmental changes . The distribution and growth of most begonias is greatly influenced by environment factors .

China has a long agricultural history . People have typically sought to introduce and cultivate wild plants found to be useful . It is reported that some edible begonias from the north of Pueblo, Mexico are cultivated in home gardens and coffee plantations (F . Basurto-Peña *et al.* 2003) . However, our surveys did not indicate any current or past attempt in China to cultivate begonias for medicinal, food and other purposes, even for the very rare but commonly used species like *B. fimbriatipula* . When begonias are found in cultivation, it is typically for ornamental purpose only .

The authors recommend that all of the important species be placed on a plant protection list before they become threatened or extinct . For those species which are most commonly used by the local people, it is further suggested that research on cultivation methods begin at once, including the use of modern technologies such as tissue culture . Severely endangered species such as *B. fimbriatipula* and *B. wilsonii* should be put in the first class of protection . Conservation management and reintroduction measures may be necessary to reinvigorate the wild populations of these most threatened species .

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